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ABSTRACT

A survey of colleges and universities yielded information about current tenure practices: distribution of faculty in selected fields; how the tenure selection system worked as measured by approval rates, deferred decisions, and early releases of tenure-track faculty; and what changes were anticipated in the practices in the next five years. Among the highlights are these: at public institutions, 69 percent of full-time faculty were tenured, and 23 percent had tenure-track positions; at private institutions these percentages were 63 and 32. The physical sciences had the highest tenure rate (76 percent) and social sciences the smallest (63 percent). Institutions expected to employ non-tenure-track faculty for an average of three years. Of the 12,400 individuals formally considered for tenure in 1978-79, 58 percent were granted tenure and 22 percent remained eligible for future consideration. The tenure approval rate was highest at private universities and lowest at private four-year colleges. The rate was also highest in engineering and lowest in social sciences. Overall, public institutions reported slightly shorter tenure probationary periods than private institutions, although both expected to use slightly longer periods in the near future. About three of ten institutions accepted postdoctoral appointments as part of pretenure probation. Data charts and graphs are included. The survey instrument, a methods explanation, and a discussion of survey reliability are appended. (MSE)

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Tenure Practices at Four-Year Colleges and Universities

Frank J. Atelsek and Irene L. Gomberg

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Once again, we wish to express our special gratitude to the Panel's campus representatives and the survey respondents for their assistance and continuing co-operation.

Highlights

Faculty Composition and Tenure

- o During 1978-79, more than 222,000 faculty were employed full-time at 1,200 four-year colleges and universities in the physical sciences, engineering, mathematical sciences, life sciences, social sciences, humanities, and education.
- o At public institutions, 69 percent of full-time faculty were tenured; 23 percent held tenure-track positions but were not yet tenured.
- o At private institutions, 63 percent of full-time faculty were tenured; 32 percent held tenure-track positions but were not yet tenured.
- o The physical sciences had the largest proportion of full-time faculty with tenure (76 percent), and social sciences had the smallest proportion (63 percent).
- o On the whole, institutions expected to employ persons in nontenure-track positions for an average of three years.

Tenure Approval Rates

- o Of the 12,400 full-time faculty members formally considered for tenure during 1978-79, 58 percent were granted tenure and 22 percent remained eligible for future reconsideration.
- o The tenure approval rate was highest at private universities (74 percent) and lowest at private four-year colleges (49 percent).
- o The tenure approval rate was highest in engineering (70 percent) and lowest in the social sciences (53 percent).

Pretenure Probation

- o On average, public institutions reported slightly shorter pretenure probationary periods than did private institutions (5.4 years vs. 5.9 years); both expected a slight lengthening of the period by 1984 (.1 and .3 additional years, respectively).
- o Approximately 3 of every 10 institutions accepted postdoctoral appointments as part of the pretenure probationary period; these institutions applied, on average, nearly 2 years of postdoctoral experience toward pretenure probation.
- o At 6 of every 10 public institutions, the system office set the length of pretenure probationary periods; at 9 of every 10 private institutions, the institution itself did so.

Background

This survey sought information about tenure practices at universities and four-year colleges. It was prompted by two interests of the survey sponsor, the National Science Foundation. NSF wished to learn more about the movement of faculty in academia to anticipate job opportunities for younger faculty in the near future. For the longer term, NSF needed information about tenure practices to develop a computer model of faculty flows which would project future faculty openings.

Questions were asked about how the faculties in selected fields were distributed within and outside the tenure system; how, in a given year, the tenure selection system actually worked as measured by approval rates, deferred decisions, and early releases of tenure-track faculty; and what changes in tenure practices were anticipated five years hence.

Methods Summary

The Higher Education Panel is a continuing survey research program created in 1971 by the American Council on Education to conduct specialized surveys on topics of current policy interest to the higher education community and government agencies. The Panel is a stratified sample of 760 colleges and universities drawn from the more than 3,000 institutions listed in the National Center for Education Statistics' (NCES) Education Directory. The Panel's stratification design is based primarily on type (university, four-year college, two-year college), control (public, private), and size (full-time-equivalent enrollment). For any given survey either the entire Panel or an appropriate subgroup is used.

The survey instrument (see Appendix A) was mailed on October 12, 1979, to all universities and four-year colleges in the Panel except independent medical schools. Twenty-four of the sample institutions reported having no tenure system. Sixteen reported having none of the discipline categories surveyed. (These were engineering; the physical, mathematical, life, and social sciences; the humanities; and education.)

Consequently, the survey sample was reduced to 461 institutions. After mail and telephone follow-up activity was completed, the field phase of the survey was closed on February 8, 1980, with a response rate of 74 percent.

According to NCES data, 1,481 four-year colleges and universities in the survey population had tenure systems in 1977-78. This number was adjusted to account for institutions not offering instruction in disciplines covered in the HEP survey by assuming that their representation in the population was similar to their representation in the Panel. Therefore, for the HEP survey, the eligible population of institutions with tenure systems and at least one of the applicable fields was estimated at 1,238. Appendix B shows the stratification design for weighting and a comparison of respondents and nonrespondents, and Appendix C discusses the reliability of the survey estimates.

Readers are reminded that not all fields were included in the survey, notably business, allied health, and the arts. Please refer to the definitions in Appendix A.

Findings

During 1978-79 the more than 1,200 universities and four-year colleges covered by this survey[1] employed about 222,000 full-time faculty. Of these, 70 percent were at public institutions. Tenure status of the professoriate in both public and private sector institutions is summarized in figure 1. The majority had already achieved tenure (69 percent at public and 63 percent at private institutions). Those who held appointments to tenure-track[2] positions but were not yet tenured accounted for 23 percent of the full-time faculty at public institutions, compared with 32 percent at private institutions.

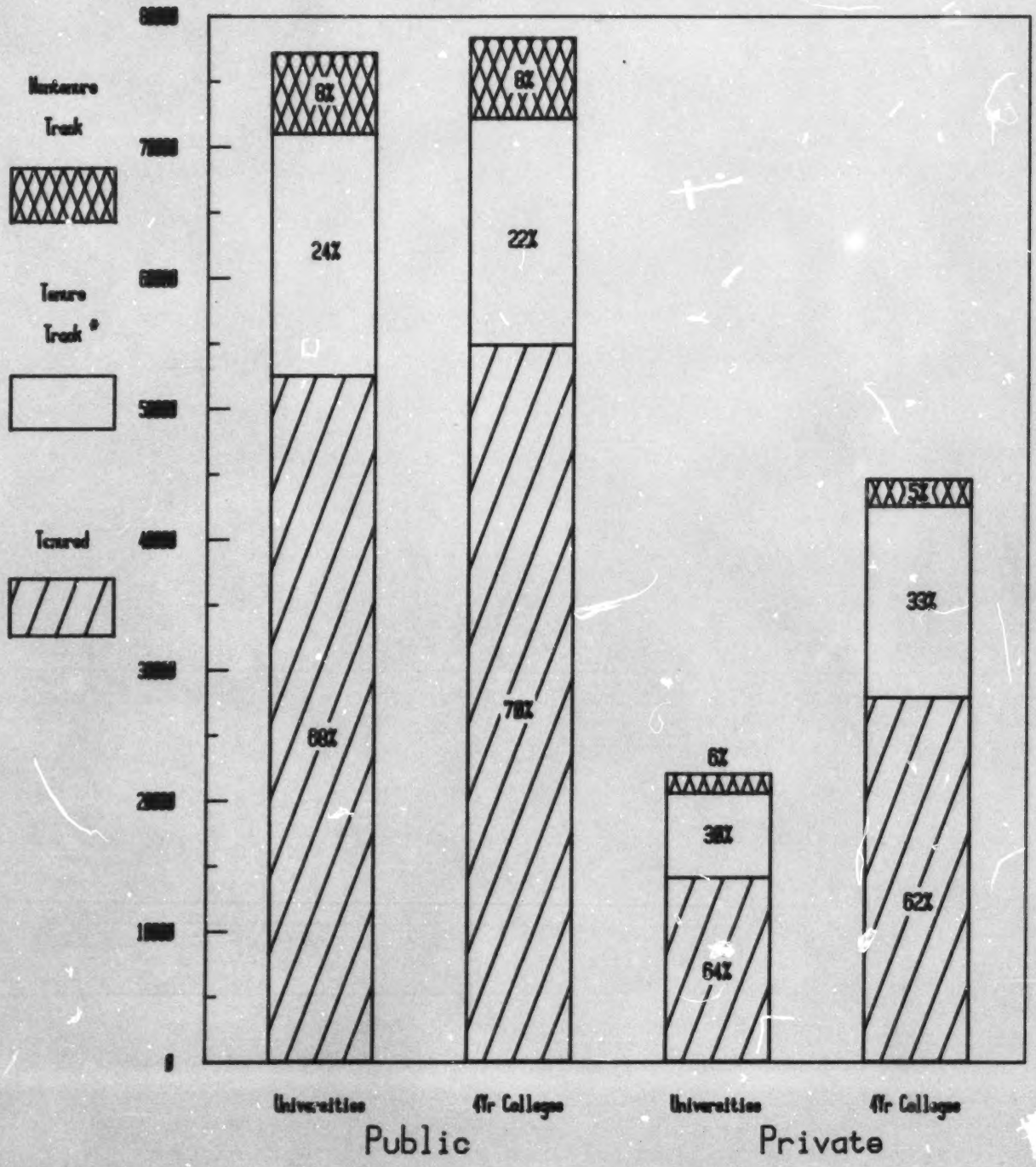
A relatively small proportion of the faculty were in positions that exclude any prospect for tenure (8 percent at public and 5 percent at private institutions). Thus,

[1] Only institutions having a tenure system and at least one of the seven selected field groupings were represented in the survey.

[2] "Tenure-track" describes faculty who currently do not have tenure but who are in positions that qualify them for future consideration for tenure appointments.

Fig. 1 Tenure Status of Full-Time Faculty

By Type of Institution 1978-1979



*Not tenured but eligible for future consideration for tenure appointment.

whereas private institutions had a slightly larger proportion of their full-time faculty appointed to tenure-track positions (95 vs. 92 percent), a somewhat smaller proportion had actually achieved tenure (63 percent at private and 69 percent at public institutions). Figure 1 also shows that the distribution of tenure status is quite similar when comparing universities and four-year colleges within sectors.

Tenure Status by Field

The distribution of full-time faculty among the seven selected fields is shown in figure 2. More than one-half of the professoriate were in engineering and the sciences. This proportion includes those in the social sciences (20 percent), the life sciences (12 percent), the physical sciences (9 percent), the mathematical sciences (7 percent), and engineering (7 percent). The humanities faculty accounted for more than one quarter (28 percent) of the professoriate, and the education faculty for 17 percent.

Considerable variation exists by field in the tenure status of faculty members (see figure 3). In the physical sciences, for example, 75 percent of the full-time faculty were already tenured, 20 percent were in tenure-track positions, and 5 percent were employed in positions not eligible for tenure. Among the education faculty, however, the proportion in nontenure-track positions was almost twice as large (9 percent); fewer than two-thirds of the education faculty (65 percent) had achieved tenure and 26 percent were in tenure-track positions.

In general, the differences in tenure status among the broad science and engineering categories depicted in figure 3 are consistent with the findings of earlier Panel surveys on young doctorate faculty. The social sciences tend to have greater proportions of young doctorate faculty than do the physical sciences and engineering fields. Thus, it is likely that more of the senior faculty in the latter fields would have already served their probationary period and been granted tenure. It is also evident from earlier HEP surveys that the influx of new faculty slowed during the seventies and that, as a consequence, the pool of younger faculty awaiting tenure is smaller in some physical sciences and engineering fields.

Fig. 2 Distribution of Full-Time Faculty

By Field 1978-1979

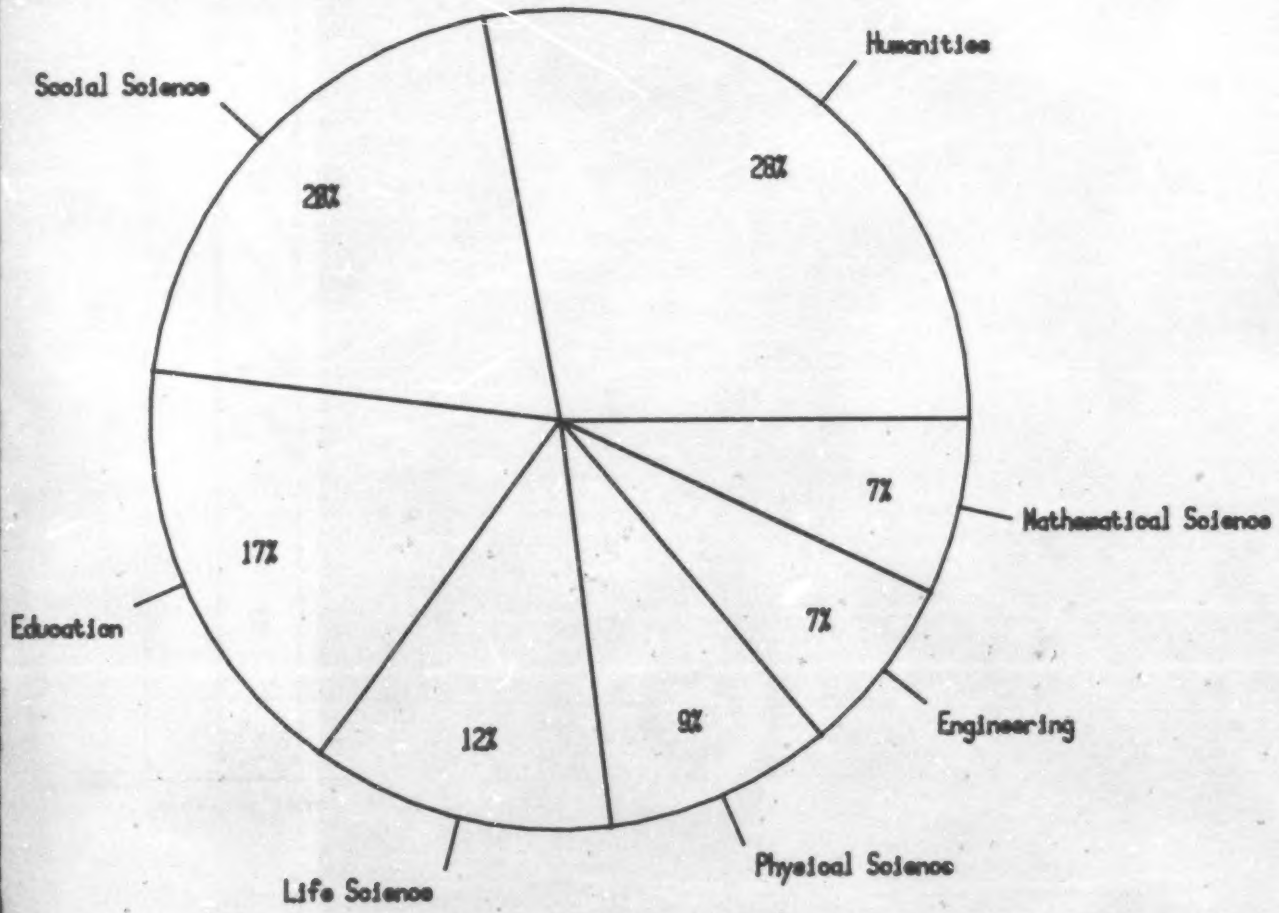
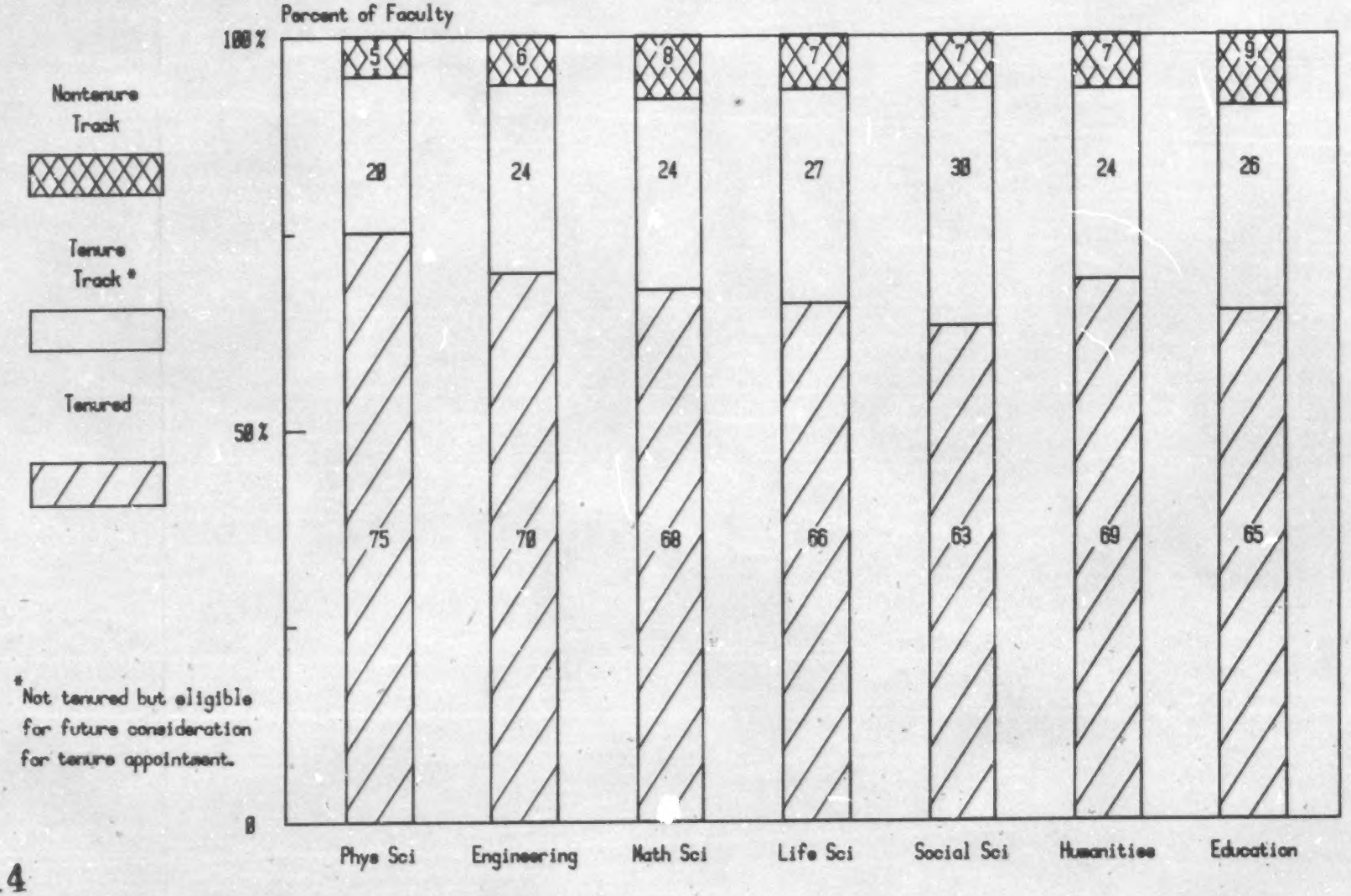


Fig. 3 Tenure Status of Full-Time Faculty

By Field 1978-1979



*Not tenured but eligible for future consideration for tenure appointment.

Job Duration of Nontenure-Track Faculty

To assess the degree of permanence that can be ascribed to the nontenure-track faculty positions, respondents were asked to estimate the expected duration of employment for such faculty hired since 1975. Overall, persons in nontenure-track positions were expected to be employed for an average of three years, with only minor variations among the various institutional types. As the summary table A below also indicates, the average duration of these faculty appointments in science and engineering fields was similar to those in the humanities. On the average, nontenure-track faculty were expected to stay in their jobs longer in university settings, and particularly at public universities (a 3.7 year average). In contrast, such faculty at private four-year colleges were expected to average 2.9 years of employment in science and engineering fields and 2.7 years in the humanities.

Table A

Average Expected Duration of Employment Among Nontenure-Track Faculty Hired Since 1975

Institutional Type	Average Number of Years	
	Science & Engineering	Humanities
Public universities	3.7	3.7
Private universities	2.8	3.2
Public four-year colleges	3.1	3.2
Private four-year colleges	2.9	2.7

Although conducted for another purpose, a 1977 Panel survey[3] of nontenure-track personnel from selected biomedical science fields warrants mention here. The survey findings indicated that many nontenure-track faculty had a limited service role within their departments. Less than half were eligible to apply for research support and take a principal part in the research functions of the department, and relatively few actually did so. In the three years prior to the 1977 survey, fewer than one in five

[3] Irene L. Gomberg and Frank J. Atelsek, Nontenure-Track Science Personnel: Opportunities for Independent Research, Higher Education Panel Report No. 39, September 1978.

nontenure-track staff applied for research support, and only one in ten actually received support as a principal investigator.

Tenure Decisions During 1978-79

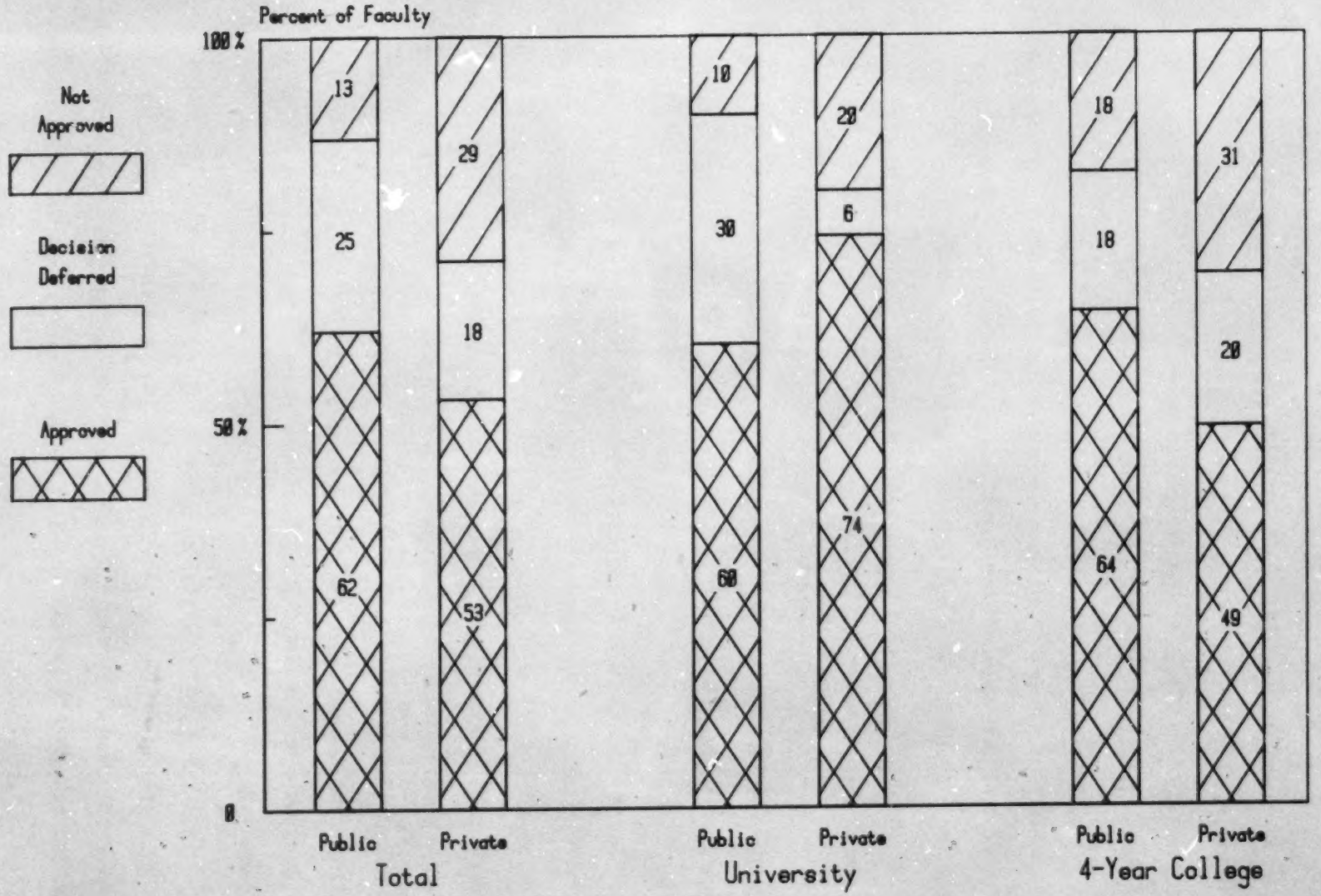
More than 12,000 faculty members were formally considered for tenure during the 1978-79 academic year. Of these, almost three of every five (58 percent) were granted tenure and about one of every five (22 percent) remained eligible for reconsideration at some future time. Although not specified in the survey data, it is assumed that the remaining fifth would relinquish their tenure-track positions in the near future.

How the tenure approval process worked within institutional categories during the 1978-79 academic year is summarized in figure 4. Overall, the tenure approval rate was somewhat higher at public than at private institutions (62 percent and 53 percent, respectively). Among university faculty, however, the approval rate was substantially higher in the private sector where 74 percent of those considered were approved for tenure, compared with only a 60 percent approval rate at public universities. However, in examining these dissimilar approval rates, one should note that at public universities, final decisions on almost one-third (30 percent) of faculty considered for tenure were deferred and that these individuals were eligible for reconsideration at some future time. In contrast, decisions were deferred for only 6 percent of the faculty considered for tenure at private universities.

It is possible that these considerable differences between public and private universities are more matters of form than substance; i.e., at public but not at private universities, faculty members, by tradition, are allowed to apply for tenure several years before completing their full probationary period. Those who fail to achieve tenure at the early stage remain eligible for reconsideration toward the end of their full probationary period. This supposition is consistent with other data showing that a greater proportion of the untenured faculty at public than at private universities were up for tenure consideration during the survey year (21 percent compared to 13 percent).

Fig. 4 Faculty Considered for Tenure

By Type of Institution 1978-1979



As figure 4 shows, the end result of the tenure process at public and private universities is more clear cut. Private universities denied tenure to twice the proportion of faculty than did the public universities (20 percent vs. 10 percent of those considered for tenure during the year).

The lowest tenure approval rates occurred at private four-year colleges (49 percent), with 20 percent of the decisions deferred. At public four-year colleges, the approval rate was considerably higher (64 percent) with 18 percent of the decisions deferred. Overall, the proportion of faculty members who were considered for but denied tenure was greater at private than at public colleges (31 percent and 18 percent, respectively).

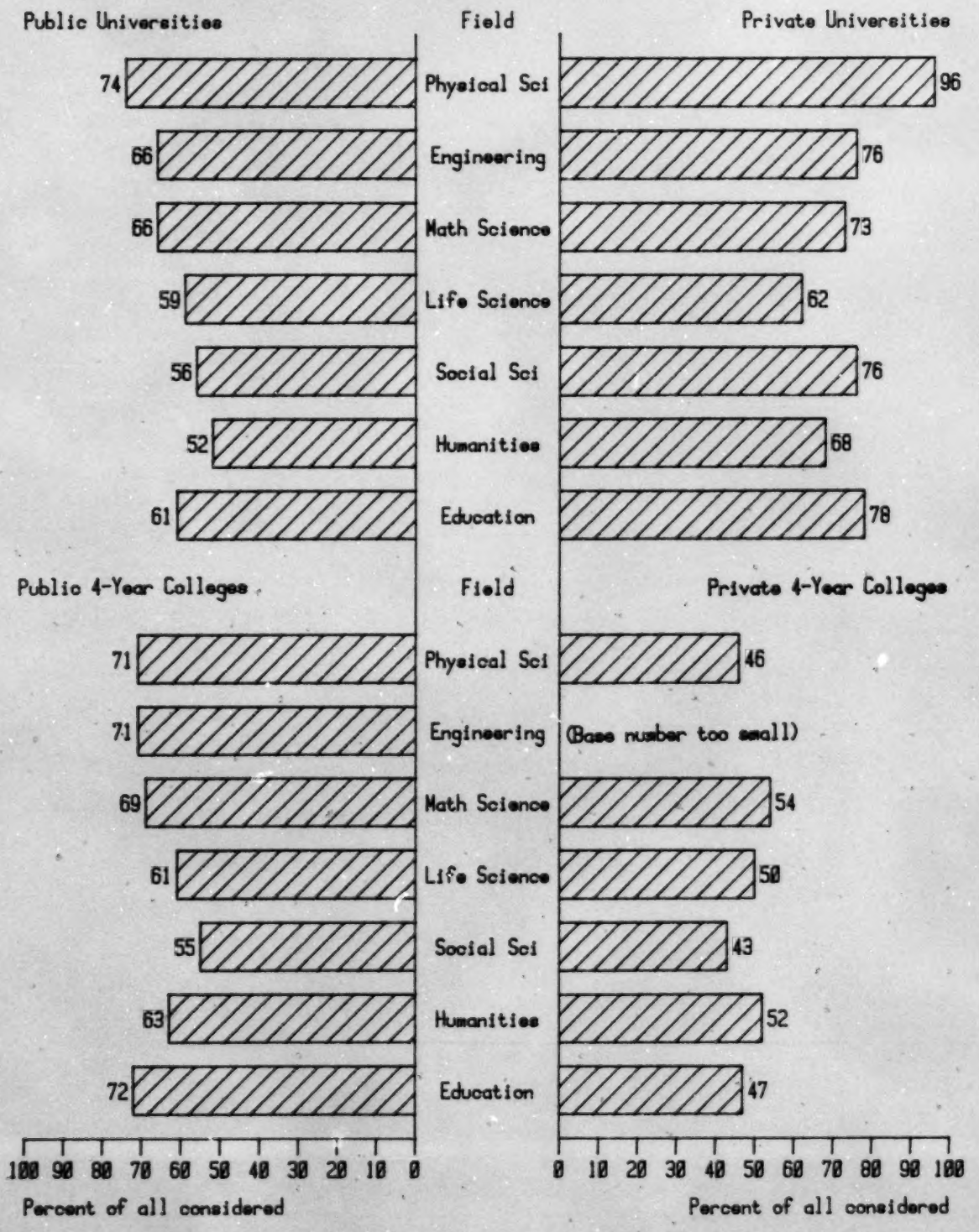
Approval for Tenure by Field. Within universities, tenure approval rates varied widely, ranging from a high of 96 percent in the physical sciences at private universities to a low of 52 percent among the humanities faculty at public universities (figure 5). In all of the fields covered by the survey, the proportion of faculty approved for tenure was consistently higher in private universities than at public universities.

In contrast to the situation for universities, the tenure approval rates were consistently higher at public than at private colleges for all fields. For example, the approval rate was above 70 percent each for education, physical science, and engineering faculties at the public four-year colleges. This rate was less than 50 percent at private four-year colleges for faculties in education (47 percent), the physical sciences (46 percent), and the social sciences (43 percent). In general, approval rates at four-year colleges--public and private combined--were somewhat lower than at the universities.

Future Tenure Approval Rates. As shown in table B below, all types of institutions except private universities estimated that greater proportions of faculty considered for tenure would be approved in the period five years from now. Compared with the 1978-79 tenure approval rates, public universities anticipated increases of 12 percentage points and public four-year colleges anticipated increases of 6 percentage

Fig. 5 Faculty Approved for Tenure

By Field and Type of Institution



points. The largest increase was expected by the private four-year colleges (from 49 percent to 67 percent), whereas at private universities a slight decline in approval rates was expected (from 74 percent to 72 percent).

Table B
Current and Future Tenure Approval Rates

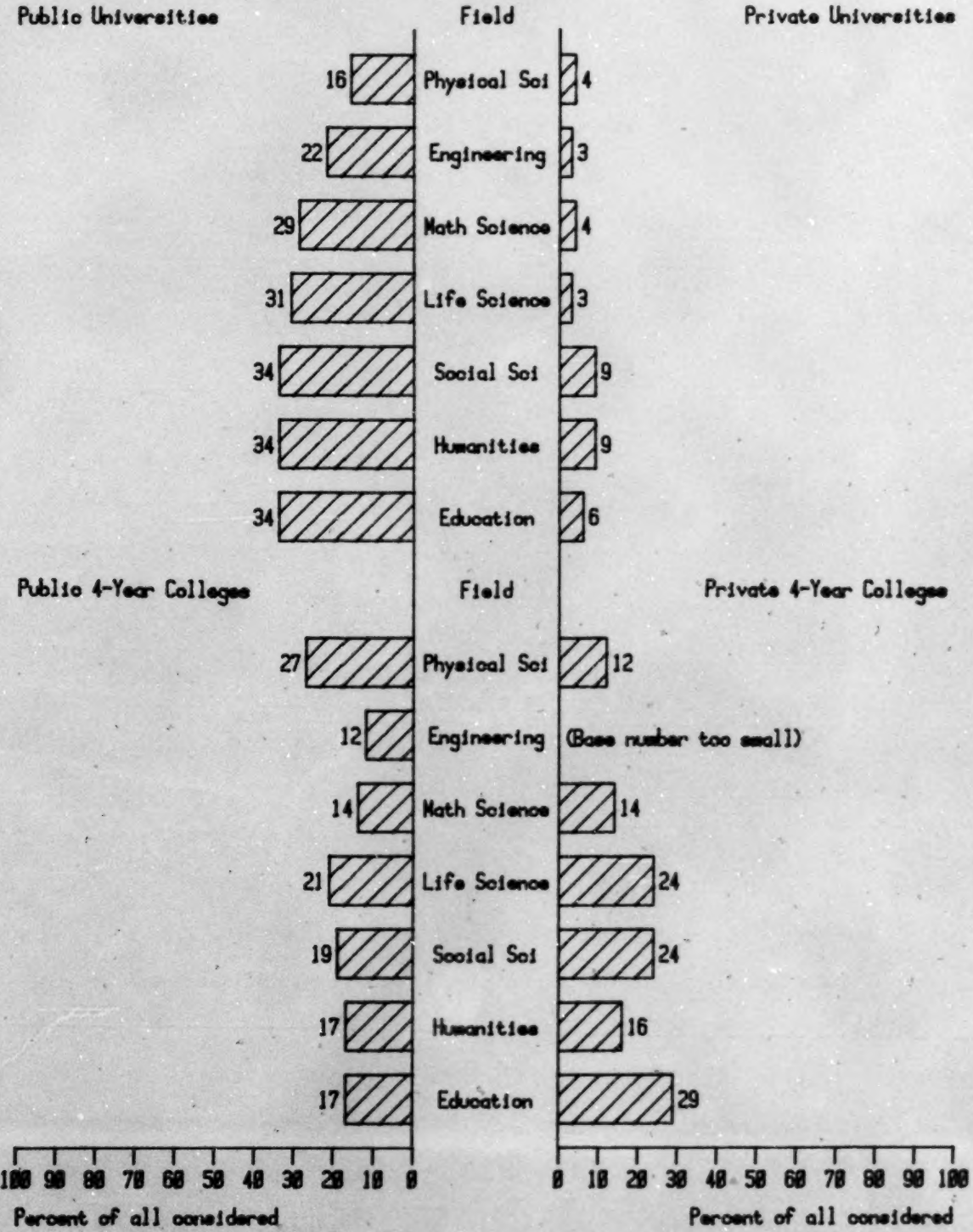
Institutional Type	Average Tenure Approval Rate: Academic Year 1978-79	Average Tenure Approval Rate: Estimates for Academic Year 1983-84
Public universities	60	72
Private universities	74	72
Public four-year colleges	64	70
Private four-year colleges	49	67

These comparisons should be considered with some reservation for three reasons. First, they are based on estimates about a tenure circumstance five years in the future. Second, and perhaps more important, some respondents indicated that the criteria for selection to tenure-track positions are becoming more stringent. Therefore, future approval rates may be higher because of the changes in the initial screening of candidates to tenure-track positions. In addition, the current approval rates do not account for approvals resulting from deferred decisions whereas the rates expected in the future may do so.

Deferral of Tenure Decisions. The findings also show strong differences by sector in the proportions of faculty for whom the tenure decision was deferred to some future year. As discussed earlier and again shown in figure 6, it is apparent that such deferrals were much less frequent at private than at public universities. In all seven fields surveyed, fewer than 10 percent of the faculty members considered for tenure at private universities had the decision deferred to a later year. At public universities, however, tenure decisions were deferred for substantial proportions of the faculty

Fig. 6 Faculty to be Reconsidered for Tenure

By Field and Type of Institution



under consideration. Deferrals ranged from 16 percent for the physical science faculty to one-third or more of the faculty in education, the social sciences and the humanities. Overall deferral rates for four-year colleges did not differ much by institutional control. (It should be noted that these data on deferred tenure decisions are limited in their meaning in that the included faculty remained eligible for tenure without any certainty that it would eventually be granted.)

Denial of Tenure. The remaining faculty, not having been granted tenure, are assumed to leave their tenure-track positions in the near future. This faculty group is depicted in figure 7 by field and type of institution. It is evident that in 1978-79, private universities and four-year colleges denied tenure to greater proportions of faculty than did their public counterparts. This difference in denial rates (29 and 14 percent, respectively) held almost without exception for each of the seven fields covered in the survey. The physical sciences at the four-year colleges presents the most extreme illustration of this contrast. Whereas, at private colleges, 42 percent of the physical sciences faculty considered were denied tenure, at public colleges only 2 percent of the faculty drew this negative decision on their tenure.

Release Without Formal Consideration for Tenure

The survey also collected information about tenure-track faculty who were released during the 1978-79 academic year without having been formally considered for tenure. Respondents were asked to exclude from their counts those who voluntarily resigned for reasons other than anticipated nonrenewal of their contracts. Table C shows that relatively few faculty were released in this manner (1,313 of the 56,566 tenure-track faculty). The proportion released without formal consideration was smaller in university settings than at the four-year colleges.

With the exception of engineering at private four-year colleges, in no field were more than 4 percent of the tenure-track faculty released without formal consideration for tenure. For most fields the proportion of faculty given such early release was in the 1 or 2 percent range.

Fig. 7 Faculty Not Approved for Tenure

By Field and Type of Institution

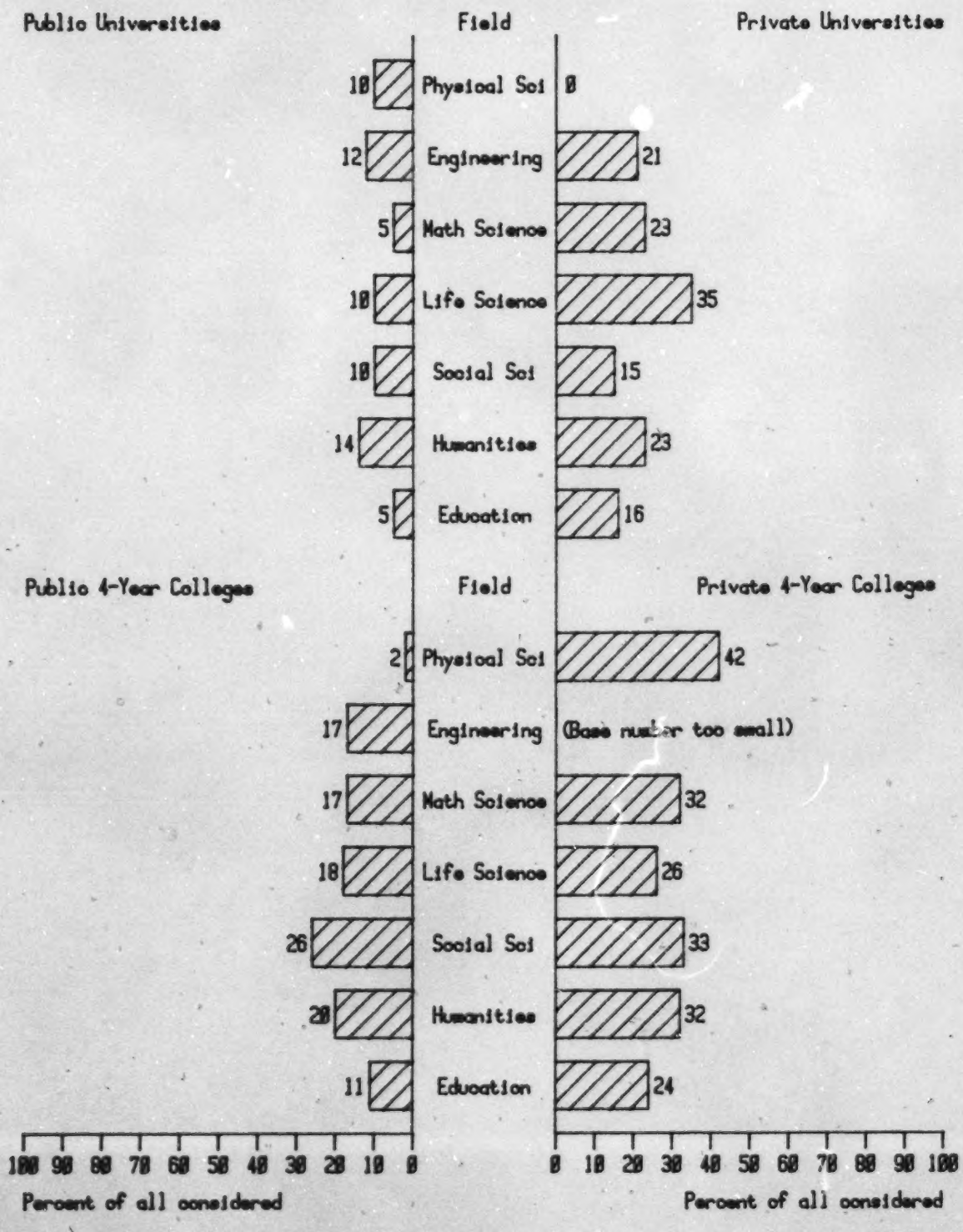


Table C
Tenure-Track Faculty Released Without Formal Consideration for Tenure

	Number Released	As a Percent of Untenured Tenure-Track Faculty
Universities		
Public	322	1.8
Private	116	1.7
Four-Year Colleges		
Public	438	2.6
Private	437	3.0

It should be noted that measures which attempt to ascribe specific reasons to voluntary resignations cannot be precise. Reasons for leaving faculty positions are often unspoken and sometimes too subtle to allow an accurate tally by a standard survey approach.

Selected Features of the Tenure Systems

Pretenure Probationary Periods. When assigned to tenure-track positions, inexperienced faculty members remain in a probationary status for a number of years before being formally considered for tenure. The survey included an inquiry about the average length of the current probationary period and an estimate of what the probationary period was expected to be five years hence. Table D shows these averages for colleges and universities in the public and private sectors.

Table D
Average Length of Pretenure Probationary Periods (in years)

	Academic Year 1978-79	Expected Five Years Hence
Universities		
Public	5.7	5.8
Private	6.1	6.5
Four-Year Colleges		
Public	5.3	5.4
Private	5.8	6.1

During the academic year 1978-79, private universities and four-year colleges had probationary periods that were somewhat longer on the average than public institutions. Over the following five years, the probationary period was expected to lengthen slightly in each institutional setting. Although the average expected increases were relatively modest (all averaging less than four-tenths of a year), officials at private institutions were expecting somewhat greater increases than were those at public universities and colleges.

The survey also inquired about decision making regarding the length of probationary periods. Table E indicates that individual departments had relatively little control over setting the length of the probationary period. Among the universities, the institution-level administration was usually responsible for length of probation (66 percent at public and 100 percent at private universities). Similarly, the institutional administration largely assumed this responsibility at private four-year colleges (86 percent). Among the public colleges, however, the system administration assumed the primary responsibility for setting length of probation (71 percent).

Table E
Administrative Level Responsible for Setting Length of Pretenure Probation

	Percent Total	Individual Departments	Institutional Administration	System Administration
Total Institutions	100	1	69	30
Universities				
Public	100	7	66	27
Private	100	0	100	0
Four-Year Colleges				
Public	100	0	29	71
Private	100	1	86	13

Credit for Postdoctoral Experience. Survey respondents were asked whether postdoctoral experience was accepted as part of the pretenure probationary period and, if so, the number of years creditable toward tenure. This information was obtained separately for two broad academic areas: the science and engineering fields and the humanities fields.

For both academic areas, postdoctoral appointments were accepted, at least in part, for the pretenure probationary period by fewer than 30 percent of the institutions covered in the survey. Among these institutions, an average of two years could be credited as probationary time. Table F below summarizes the extent to which public and private colleges and universities accepted time in postdoctoral positions for pretenure probation.

Table F
Acceptance of Postdoctoral Appointments in Pretenure Probation

	Science and Engineering		Humanities	
	Percent Accepting	Years Accepted	Percent Accepting	Years Accepted
Total Institutions	28	1.9	29	1.9
Universities				
Public	22	1.8	22	1.5
Private	29	1.1	29	.7
Four-Year Colleges				
Public	28	1.9	27	1.9
Private	29	2.0	31	2.0

Basic Report Tables

Table 1

Tenure Status of Full-Time Faculty at Colleges and Universities 1978-79, by Selected Field: All Institutions

Field	Total Faculty		Tenured Faculty		Tenure-Track (Not Tenured) Faculty		Nontenure-Track Faculty	
	Number	Percent	Number	% of Total	Number	% of Total	Number	% of Total
Physical sciences	21,046	100.0	15,896	75.5	4,132	19.6	1,018	4.8
Engineering	15,031	100.0	10,508	69.9	3,651	24.3	872	5.8
Mathematical sciences	16,569	100.0	11,233	67.8	4,006	24.2	1,330	8.0
Life sciences	26,599	100.0	17,433	65.5	7,282	27.4	1,884	7.1
Social sciences	44,022	100.0	27,917	63.4	13,018	29.6	3,087	7.0
Humanities	62,186	100.0	43,129	69.4	14,747	23.7	4,310	6.9
Education	36,678	100.0	23,667	64.5	9,730	26.5	3,281	8.9
Total	222,131	100.0	149,783	67.4	56,566	25.5	15,782	7.1

Table 2

Tenure Status of Full-Time Faculty at Colleges and Universities 1978-79, by Selected Field: Public Institutions

Field	Total Faculty		Tenured Faculty		Tenure-Track (Not Tenured) Faculty		Nontenure-Track Faculty	
	Number	Percent	Number	% of Total	Number	% of Total	Number	% of Total
Physical sciences	14,314	100.0	11,162	78.0	2,316	16.2	836	5.8
Engineering	11,454	100.0	8,070	70.5	2,617	22.8	767	6.6
Mathematical sciences	12,210	100.0	8,376	68.6	2,716	22.2	1,118	9.1
Life sciences	21,123	100.0	13,905	65.8	5,564	26.3	1,654	7.8
Social sciences	29,567	100.0	19,636	66.4	7,660	25.9	2,271	7.6
Humanities	37,537	100.0	27,188	72.4	7,479	19.9	2,870	7.6
Education	29,235	100.0	19,606	67.1	6,882	23.5	2,747	9.3
Total	155,440	100.0	107,943	69.4	35,234	22.7	12,263	7.8

Table 3

Tenure Status of Full-Time Faculty at Colleges and Universities 1978-79, by Selected Field: Private Institutions

Field	Total Faculty		Tenured Faculty		Tenure-Track (Not Tenured) Faculty		Nontenure-Track Faculty	
	Number	Percent	Number	% of Total	Number	% of Total	Number	% of Total
Physical sciences	6,732	100.0	4,734	70.3	1,816	27.0	182	2.7
Engineering	3,577	100.0	2,438	68.2	1,034	28.9	105	2.9
Mathematical sciences	4,359	100.0	2,857	65.5	1,290	29.6	212	4.8
Life sciences	5,476	100.0	3,528	64.4	1,718	31.4	230	4.2
Social sciences	14,455	100.0	8,281	57.3	5,358	37.1	816	5.6
Humanities	24,649	100.0	15,941	64.7	7,268	29.5	1,440	5.8
Education	7,443	100.0	4,061	54.6	2,848	38.3	534	7.1
Total	66,691	100.0	41,840	62.7	21,332	32.0	3,519	5.2

Table 4

Tenure Status of Full-Time Faculty at Colleges and Universities 1978-79, by Selected Field: Public Universities

Field	Total Faculty		Tenured Faculty		Tenure-Track (Not Tenured) Faculty		Nontenure-Track Faculty	
	Number	Percent	Number	% of Total	Number	% of Total	Number	% of Total
Physical sciences	7,459	100.0	5,818	78.0	1,292	17.3	349	4.6
Engineering	8,518	100.0	6,056	71.1	1,916	22.5	546	6.4
Mathematical sciences	5,827	100.0	3,891	66.8	1,359	23.3	577	9.9
Life sciences	13,485	100.0	8,752	64.9	3,652	27.1	1,081	8.0
Social sciences	13,714	100.0	9,274	67.6	3,552	25.9	888	6.4
Humanities	15,700	100.0	11,000	70.1	3,400	21.7	1,300	8.2
Education	12,327	100.0	7,879	63.9	3,125	25.4	1,323	10.7
Total	77,030	100.0	52,670	68.4	18,296	23.8	6,064	7.8

Table 5

Tenure Status of Full-Time Faculty at Colleges and Universities 1978-79, by Selected Field: Public Four-Year Colleges

Field	Total Faculty		Tenured Faculty		Tenure-Track (Not Tenured) Faculty		Nontenure-Track Faculty	
	Number	Percent	Number	% of Total	Number	% of Total	Number	% of Total
Physical sciences	6,855	100.0	5,344	78.0	1,024	14.9	487	7.1
Engineering	2,936	100.0	2,014	68.6	701	23.9	221	7.5
Mathematical sciences	6,383	100.0	4,485	70.3	1,357	21.3	541	8.4
Life sciences	7,638	100.0	5,153	67.5	1,912	25.0	573	7.5
Social sciences	15,853	100.0	10,362	65.4	4,108	25.9	1,383	8.7
Humanities	21,837	100.0	16,188	74.1	4,079	18.7	1,570	7.1
Education	16,908	100.0	11,727	69.4	3,757	22.2	1,424	8.4
Total	78,410	100.0	55,273	70.5	16,938	21.6	6,199	7.9

Table 6

Tenure Status of Full-Time Faculty at Colleges and Universities 1978-79, by Selected Field: Private Universities

Field	Total Faculty		Tenured Faculty		Tenure-Track (Not Tenured) Faculty		Nontenure-Track Faculty	
	Number	Percent	Number	% of Total	Number	% of Total	Number	% of Total
Physical sciences	2,460	100.0	1,807	73.5	561	22.8	92	3.7
Engineering	2,986	100.0	2,053	68.8	842	28.2	91	3.0
Mathematical sciences	1,625	100.0	977	60.1	538	33.1	110	6.7
Life sciences	1,588	100.0	965	60.8	549	34.6	74	4.6
Social sciences	4,756	100.0	2,827	59.4	1,661	34.9	268	5.6
Humanities	6,970	100.0	4,363	62.6	2,050	29.4	557	7.9
Education	1,563	100.0	989	63.3	474	30.3	100	6.3
Total	21,948	100.0	13,981	63.7	6,675	30.4	1,292	5.8

Table 7

Tenure Status of Full-Time Faculty at Colleges and Universities 1978-79, by Selected Field: Private Four-Year Colleges

Field	Total Faculty		Tenured Faculty		Tenure-Track (Not Tenured) Faculty		Nontenure-Track Faculty	
	Number	Percent	Number	% of Total	Number	% of Total	Number	% of Total
Physical sciences	4,272	100.0	2,927	68.5	1,255	29.4	90	2.1
Engineering	591	100.0	385	65.1	192	32.5	14	2.3
Mathematical sciences	2,734	100.0	1,880	68.8	752	27.5	102	3.7
Life sciences	3,888	100.0	2,563	65.9	1,169	30.1	156	4.0
Social sciences	9,699	100.0	5,454	56.2	3,697	38.1	548	5.6
Humanities	17,679	100.0	11,578	65.5	5,218	29.5	883	4.9
Education	5,880	100.0	3,072	52.2	2,374	40.4	434	7.3
Total	44,743	100.0	27,859	62.3	14,657	32.8	2,227	4.9

Table 8

Expected Average Length of Employment of Nontenure-Track Faculty Hired Since 1975, by Institutional Category

Category	Expected Average Number of Years	
	Science and Engineering	Humanities
Public universities	3.7	3.7
Public four-year colleges	3.1	3.2
Total public	3.2	3.3
Private universities	2.8	3.2
Private four-year colleges	2.9	2.7
Total private	2.9	2.8
Total institutions	3.0	3.1

Table 9

Tenure Practices at Four-Year Colleges and Universities 1978-79, by Selected Field: All Institutions

Field	Number of Tenure-Track (Not Tenured) Faculty	Faculty Released Without Formal Consideration of Tenure		Faculty Formally Considered for Tenure					
				Considered		Approved		To Be Reconsidered	
		Number	% of (1)	Number	% of (1)	Number	% of (4)	Number	% of (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Physical sciences	4,132	79	1.9	782	18.9	516	66.0	128	16.3
Engineering	3,651	58	1.6	692	18.9	485	70.0	109	15.7
Mathematical sciences	4,006	91	2.3	798	19.9	511	64.0	142	17.7
Life sciences	7,282	94	1.3	1,477	20.2	849	57.4	382	25.8
Social sciences	13,018	386	3.0	2,605	20.0	1,391	53.3	644	24.7
Humanities	14,747	326	2.2	3,813	25.8	2,126	55.7	729	19.1
Education	9,730	279	2.9	2,278	23.4	1,384	60.7	585	25.6
Total	56,566	1,313	2.3	12,445	21.9	7,262	58.3	2,719	21.8

Table 10

Tenure Practices at Four-Year Colleges and Universities 1978-79, by Selected Field: Public Institutions

Field	Number of Tenure-Track (Not Tenured) Faculty	Faculty Released Without Formal Consideration of Tenure		Faculty Formally Considered for Tenure					
				Considered		Approved		To Be Reconsidered	
		Number	% of (1)	Number	% of (1)	Number	% of (4)	Number	% of (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Physical sciences	2,316	34	1.5	477	20.5	347	72.7	97	20.3
Engineering	2,617	29	1.1	521	19.9	352	67.5	101	19.3
Mathematical sciences	2,716	54	2.0	500	18.4	339	67.8	105	21.0
Life sciences	5,564	51	.9	1,061	19.0	634	59.7	295	27.8
Social sciences	7,660	222	2.9	1,679	21.9	936	55.7	445	26.5
Humanities	7,479	196	2.6	1,652	22.0	961	58.1	409	24.7
Education	6,882	174	2.5	1,418	20.6	952	67.1	350	24.6
Total	35,234	760	2.2	7,308	20.7	4,521	61.8	1,802	24.6

Table 11

Tenure Practices at Four-Year Colleges and Universities 1978-79, by Selected Field: Private Institutions

Field	Number of Tenure-Track (Not Tenured) Faculty	Faculty Released Without Formal Consideration of Tenure		Faculty Formally Considered for Tenure					
				Considered		Approved		To Be Reconsidered	
		Number	% of (1)	Number	% of (1)	Number	% of (4)	Number	% of (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Physical sciences	1,816	45	2.5	305	16.7	169	55.4	31	10.1
Engineering	1,034	29	2.8	171	16.5	133	77.7	8	4.6
Mathematical sciences	1,290	37	2.9	298	23.1	172	57.7	37	12.4
Life sciences	1,718	43	2.5	416	24.2	215	51.6	87	20.9
Social sciences	5,358	164	3.1	926	17.2	455	49.1	199	21.4
Humanities	7,268	130	1.8	2,161	29.7	1,165	53.9	320	14.8
Education	2,848	105	3.7	860	30.1	432	50.2	235	27.3
Total	21,332	553	2.6	5,137	24.0	2,741	53.3	917	17.8

Table 12

Tenure Practices at Four-Year Colleges and Universities 1978-79, by Selected Field: Public Universities

Field	Number of Tenure-Track (Not Tenured) Faculty	Faculty Released Without Formal Consideration of Tenure		Faculty Formally Considered for Tenure					
				Considered		Approved		To Be Reconsidered	
		Number	% of (1)	Number	% of (1)	Number	% of (4)	Number	% of (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Physical sciences	1,292	26	2.0	277	21.4	205	74.0	43	15.5
Engineering	1,916	27	1.4	381	19.8	253	66.4	84	22.0
Mathematical sciences	1,359	31	2.3	241	17.7	159	65.9	69	28.6
Life sciences	3,652	43	1.2	674	18.4	398	59.0	212	31.4
Social sciences	3,552	57	1.6	839	23.6	472	56.2	282	33.6
Humanities	3,400	82	2.4	782	23.0	410	52.4	264	33.7
Education	3,125	56	1.8	630	20.1	382	60.6	216	34.2
Total	18,296	322	1.8	3,824	20.9	2,279	59.5	1,170	30.5

Table 13

Tenure Practices at Four-Year Colleges and Universities 1978-79, by Selected Field:
Public Four-Year Colleges

Field	Number of Tenure-Track (Not Tenured) Faculty	Faculty Released Without Formal Consideration of Tenure		Faculty Formally Considered for Tenure					
				Considered		Approved		To Be Reconsidered	
		Number	% of (1)	Number	% of (1)	Number	% of (4)	Number	% of (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Physical sciences	1,024	8	.8	200	19.5	142	71.0	54	27.0
Engineering	701	2	.3	140	19.9	99	70.7	17	12.1
Mathematical sciences	1,357	23	1.7	259	19.0	180	69.4	36	13.8
Life sciences	1,912	8	.4	387	20.2	236	60.9	83	21.4
Social sciences	4,108	165	4.0	840	20.4	464	55.2	163	19.4
Humanities	4,079	114	2.8	870	21.3	551	63.3	145	16.6
Education	3,757	118	3.1	788	20.9	570	72.3	134	17.0
Total	16,938	438	2.6	3,484	20.5	2,242	64.3	632	18.1

Table 14

Tenure Practices at Four-Year Colleges and Universities 1978-79, by Selected Field:
Private Universities

Field	Number of Tenure-Track (Not Tenured) Faculty	Faculty Released Without Formal Consideration of Tenure		Faculty Formally Considered for Tenure					
				Considered		Approved		To Be Reconsidered	
		Number	% of (1)	Number	% of (1)	Number	% of (4)	Number	% of (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Physical sciences	561	5	.9	57	10.2	55	96.5	2	3.5
Engineering	842	12	1.4	141	16.7	107	75.8	4	2.8
Mathematical sciences	538	12	2.2	56	10.4	41	73.2	2	3.5
Life sciences	549	7	1.3	69	12.5	43	62.3	2	2.8
Social sciences	1,661	37	2.2	174	10.4	133	76.4	15	8.6
Humanities	2,050	35	1.7	296	14.4	200	67.5	26	8.7
Education	474	8	1.7	79	16.6	62	78.4	5	6.3
Total	6,675	116	1.7	872	13.0	641	73.5	56	6.4

Table 15

Tenure Practices at Four-Year Colleges and Universities 1978-79, by Selected Field:
Private Four-Year Colleges

Field	Number of Tenure-Track (Not Tenured) Faculty	Faculty Released Without Formal Consideration of Tenure		Faculty Formally Considered for Tenure					
				Considered		Approved		To Be Reconsidered	
		Number	% of (1)	Number	% of (1)	Number	% of (4)	Number	% of (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Physical sciences	1,255	40	3.2	248	19.7	114	45.9	29	11.6
Engineering	192	17	8.9	a	a	a	a	a	a
Mathematical sciences	752	25	3.3	242	32.1	131	54.1	35	14.4
Life sciences	1,169	36	3.1	347	29.6	172	49.5	85	24.4
Social sciences	3,697	127	3.4	752	20.3	322	42.8	184	24.4
Humanities	5,218	95	1.8	1,865	35.7	965	51.7	294	15.7
Education	2,374	97	4.1	781	32.8	370	47.3	230	29.4
Total	14,657	437	3.0	4,265	29.0	2,100	49.2	861	20.1

[a]Number of cases too small for data to be shown.

Table 16

Faculty Approved for Tenure as a Proportion of Those Considered, and the Average Length of Pretenure Probationary Periods for Inexperienced Faculty, Currently (1978-79) and Expected in Five Years:
All Institutions

Field	Approval Rate (in percentages)		Probationary Period (in years)	
	Current	Expected	Current	Expected
Physical sciences	66.0	72.9	5.7	5.9
Engineering	70.0	59.9	5.2	5.5
Mathematical sciences	64.0	70.3	5.7	5.9
Life sciences	57.4	71.9	5.7	5.9
Social sciences	53.3	70.3	5.7	5.9
Humanities	55.7	69.2	5.7	5.9
Education	60.7	68.0	5.7	5.9
Total	58.3	68.9	5.6	5.8

Table 17

Faculty Approved for Tenure as a Proportion of Those Considered, and the Average Length of Pretenure Probationary Periods for Inexperienced Faculty, Currently (1978-79) and Expected in Five Years: Public Institutions

Field	Approval Rate (in percentages)		Probationary Period (in years)	
	Current	Expected	Current	Expected
Physical sciences	72.7	72.3	5.4	5.5
Engineering	67.5	67.4	5.3	5.6
Mathematical sciences	67.8	72.0	5.4	5.5
Life sciences	59.7	70.9	5.4	5.5
Social sciences	55.7	69.9	5.4	5.5
Humanities	58.1	70.2	5.4	5.5
Education	67.1	68.9	5.4	5.5
Total	61.8	70.2	5.4	5.5

Table 18

Faculty Approved for Tenure as a Proportion of Those Considered, and the Average Length of Pretenure Probationary Periods for Inexperienced Faculty, Currently (1978-79) and Expected in Five Years: Private Institutions

Field	Approval Rate (in percentages)		Probationary Period (in years)	
	Current	Expected	Current	Expected
Physical sciences	55.4	73.6	6.1	6.3
Engineering	77.7	52.4	5.1	5.4
Mathematical sciences	57.7	68.6	6.0	6.3
Life sciences	51.6	72.9	6.0	6.3
Social sciences	49.1	70.8	6.0	6.3
Humanities	53.9	68.2	6.1	6.3
Education	50.2	67.2	6.0	6.3
Total	53.3	67.7	5.9	6.2

Table 19

Faculty Approved for Tenure as a Proportion of Those Considered, and the Average Length of Pretenure Probationary Periods for Inexperienced Faculty, Currently (1978-79) and Expected in Five Years: Public Universities

Field	Approval Rate (in percentages)		Probationary Period (in years)	
	Current	Expected	Current	Expected
Physical sciences	74.0	75.0	5.7	5.9
Engineering	66.4	72.6	5.7	5.9
Mathematical sciences	65.9	73.6	5.7	5.8
Life sciences	59.0	72.6	5.8	5.9
Social sciences	56.2	71.9	5.8	5.9
Humanities	52.4	71.7	5.8	5.9
Education	60.6	70.7	5.7	5.9
Total	59.5	72.5	5.7	5.8

Table 20

Faculty Approved for Tenure as a Proportion of Those Considered, and the Average Length of Pretenure Probationary Periods for Inexperienced Faculty, Currently (1978-79) and Expected in Five Years: Public Four-Year Colleges

Field	Approval Rate (in percentages)		Probationary Period (in years)	
	Current	Expected	Current	Expected
Physical sciences	71.0	71.6	5.3	5.4
Engineering	70.7	66.1	5.2	5.5
Mathematical sciences	69.4	71.6	5.3	5.4
Life sciences	60.9	70.4	5,3	5.4
Social sciences	55.2	69.4	5.3	5.4
Humanities	63.3	69.8	5.4	5.4
Education	72.3	68.4	5.3	5.5
Total	64.3	69.6	5.3	5.4

Table 21

Faculty Approved for Tenure as a Proportion of Those Considered, and the Average Length of Pretenure Probationary Periods for Inexperienced Faculty, Currently (1978-79) and Expected in Five Years: Private Universities

Field	Approval Rate (in percentages)		Probationary Period (in years)	
	Current	Expected	Current	Expected
Physical sciences	96.5	74.2	6.2	6.5
Engineering	75.8	72.8	6.1	6.6
Mathematical sciences	73.2	70.7	6.2	6.5
Life sciences	62.3	72.4	6.2	6.6
Social sciences	76.4	71.4	6.1	6.5
Humanities	67.5	70.4	6.2	6.6
Education	78.4	71.7	6.0	6.5
Total	73.5	71.9	6.1	6.5

Table 22

Faculty Approved for Tenure as a Proportion of Those Considered, and the Average Length of Pretenure Probationary Periods for Inexperienced Faculty, Currently (1978-79) and Expected in Five Years: Private Four-Year Colleges

Field	Approval Rate (in percentages)		Probationary Period (in years)	
	Current	Expected	Current	Expected
Physical sciences	45.9	73.4	6.0	6.2
Engineering	*	*	4.9	5.1
Mathematical sciences	54.1	68.1	6.0	6.2
Life sciences	49.5	73.0	6.0	6.3
Social sciences	42.8	70.7	6.0	6.2
Humanities	51.7	67.6	6.0	6.2
Education	47.3	66.0	6.1	6.3
Total	49.2	66.6	5.8	6.1

*Number of cases too small for data to be shown.

Table 23

Administrative Level Responsible for the Length of the Pretenure Probationary Period, 1978-79, by Institutional Category
(In Percentages)

Category	Total		Individual Departments	Institutional Administration	System Administration
	Number	Percent			
Public universities	111	100.0	6.6	66.6	26.6
Public four-year colleges	365	100.0	0	29.1	70.8
Total public	476	100.0	1.5	38.0	60.3
Private universities	69	100.0	0	100.0	0
Private four-year colleges	693	100.0	1.0	85.8	13.1
Total private	762	100.0	.9	87.0	12.0
Total institutions	1,238	100.0	1.1	69.0	29.8

Table 24

Acceptance of Postdoctoral Appointments as Part of the Pretenure Probationary Period, by Institutional Category

	SCIENCE AND ENGINEERING			HUMANITIES		
	Average Number of Years Accepted	Institutions Accepting Postdoctoral Experience		Average Number of Years Accepted	Institutions Accepting Postdoctoral Experience	
		Number	% of Total		Number	% of Total
Public universities	1.8	24	21.6	1.5	24	21.6
Public four-year colleges	1.9	103	28.2	1.9	100	27.4
Total public	1.9	127	26.7	1.8	124	26.1
Private universities	1.1	20	29.0	.7	20	29.0
Private four-year colleges	2.0	200	28.9	2.0	218	31.5
Total private	1.9	220	28.9	1.9	238	31.2
Total institutions	1.9	347	28.0	1.9	362	29.3

APPENDIX A: Survey Instrument

AMERICAN COUNCIL ON EDUCATION
ONE DUPONT CIRCLE
WASHINGTON, D. C. 20036

HIGHER EDUCATION PANEL
(202) 833-4757

October 12, 1979

Dear Higher Education Panel Representative:

Attached is the 48th survey of the Higher Education Panel, "Tenure Practices at Four-Year Colleges and Universities." It is sponsored by the National Science Foundation and seeks information regarding the effects of tenure practices on the employment of new faculty in higher education. More specifically, how long are pretenure probationary periods, what proportions of new faculty receive tenure, and how many faculty are released without being considered for tenure?

Tenure practices strongly influence the extent of faculty turnover and the number of new faculty hired each year. Over time, changes in tenure practices also lead to shifts in the faculty age distribution. Anecdotal evidence currently suggests that fewer faculty are attaining tenure and that increasing numbers of younger faculty are being hired for nontenure-track positions. This survey will help establish how faculty composition may change in the years ahead.

Based on field test results, we believe that the requested information can be provided from a central source. Please provide your best estimates where actual data are either not available or easily accessible. The field test also indicated that the provost's office or the office of the academic affairs would best be able to respond. As usual, however, we leave that judgment to you.

Please understand that responses from your institutions will be held in strictest confidence. As with all our surveys, the data you provide will be reported in summary fashion only and will not be identifiable with your institution. This survey is authorized by the National Science Foundation Act of 1950, as amended. While you are not required to respond, your cooperation is needed to make the results comprehensive, reliable, and timely.

Please return the completed questionnaire to us by November 2, 1979. A prepaid return envelope has been enclosed for your convenience. If you have any problems or questions, please do not hesitate to telephone us collect at (202) 833-4757.

Thank you for your continuing support.

Sincerely,

Frank J. Atelsek

Frank J. Atelsek
Panel Director

Does your institution have a tenure system? Yes____ No____
If "Yes", please complete the questionnaire. If not, please check "No" and return this form.

AMERICAN COU

HIGHER EDUCATIO

Tenure Practices at Four-

Read definitions on page 4 before proceeding. If you have any questions or problems, please call the HEP staff collect at (202) 833-4757.

Columns (1) through (8) pertain to full-time faculty member

	Full-Time Faculty at the Beginning of the Year:			Full-Time Faculty Cor
	1 Number Tenured	2 Number Tenure-Track but Not Tenured	3 Number Nontenure-Track	4 Total Number Considered (see Note A below)
Fields				
Physical sciences				
Engineering				
Mathematical sciences				
Life sciences				
Social sciences				
Humanities				
Education				

Notes.

A. Exclude those who held tenure at another institution prior to appointment at yours.

B. Do not count those who voluntarily resigned for reasons other than anticipated nonrenewal of their contracts.

C. The estimate of full-time faculty who will be awarded tenure as a percentage of those who are considered.

3a. How long is it expected that non-tenure-track full-time faculty hired since 1975 will be retained?

	Science and Engineering	Humanities
Years		

Please keep a copy of this survey for your records.

Person completing form:

Name

Dept.

Phone

Please return this form by *November 2* to:

Higher Education Panel
American Council on Education
One Dupont Circle, N.W.
Washington, D.C. 20036

Thank you for your assistance.

OMB #099-RO265
Exp. 6/81

...NCIL ON EDUCATION

...PANEL SURVEY NO. 48:

...Year Colleges and Universities

...s at your institution during academic year 1978-79.

Columns (9) and (10) seek estimates of tenure practices five years from now

...idered for Tenure During the Year

5 Of those in (4), the Number Who Received or Were Approved for Tenure	6 Number in (4) to be Reconsidered in Future	7 Number of Tenure-Track Faculty Released Without Having Been Formally Considered for Tenure (see Note B below)	8 Average Length of Pretenure Probationary Periods for Inexperienced Faculty (in years)	9 What do you expect the pretenure probationary periods to be five years from now? (in years)	10 In five years, what percentage of faculty considered for tenure will receive or be approved for it? (see Notes A and C below)

...a. What is the average number of years in post-doctorate appointments accepted as part of the pretenure probationary period in your institution?

	Science and Engineering	Humanities
Number of years accepted		
Check here if post-doctorate experience is *not* accepted	☐	☐

...b. What level of administration has the primary responsibility for setting the length of pretenure probationary periods in your institution? *(please check only one)*

- ☐ Individual departments
- ☐ Institutional administration
- ☐ System administration

Why do you expect these changes to occur?

9a. _____

10a. _____

Definitions

1. Full-time faculty

   Please include instructors, assistant professors, associate professors, full professors, and other equivalent ranks.

   Do not include the following: visiting professors, postdoctorates and research associates, graduate students, or others who are regular full-time members of the faculty.

   Do not include faculty whose primary appointment (more than half-time) is in your institution's medical school faculty.

   If a full-time faculty member has appointments in more than one of the fields below, include that faculty member in the field in which the most work time is spent.

2. Fields

   A. Science and engineering

   Physical sciences: Include chemistry, earth sciences, physics, geology, meteorology, astronomy, metallurgy, geophysics, pharmaceutical chemistry, and related fields.

   Engineering: Include aeronautical, architectural, biomedical, ceramic, chemical, civil, electrical, engineering sciences, environmental health engineering, geological, mechanical, mining, nuclear, petroleum, and all other forms of engineering. *(Exclude engineering technologies.)*

   Mathematical sciences: Include mathematics, statistics, computer sciences, data processing, systems analysis, and all related fields.

   Life sciences: Include biology, botany, zoology, ecology, embryology, entomology, genetics, nutrition, plant pathology, plant physiology, anatomy, biochemistry, biophysics, microbiology, pathology, pharmacology, physiology, and related fields. Also include agriculture, forestry, and related fields. *(Exclude agricultural economics, which should be reported under "social sciences".)*

   Social sciences: Include agricultural economics, geography, economics, anthropology, archeology, economics, linguistics, sociology, government (political science), demography, and psychology. *(Do not include history, social work, public administration, and other applied fields.)*

   B. Education

   Education: Include elementary, secondary, higher, adult, special and related fields of education.

   C. Humanities

   Humanities: Include English, foreign languages, history, philosophy, American studies, and related fields.

3. Post-doctorate appointment

   A *postdoctoral appointment* is a temporary appointment, the primary purpose of which is to provide for continued education or experience in research usually, though not necessarily, under the supervision of a senior mentor. Include individuals with Ph.D.'s or Sc.D.'s who devote full time to research activities or study in the department under temporary appointments carrying no academic rank. Such appointments are generally for a specific time period.

APPENDIX B: Stratification Design and Response Analysis

Survey responses were weighted by the ratio of the number of institutions in the population to the number of institutions in the Panel that responded to the survey item. Missing values within each of the ten columns of questionnaire items were replaced by the mean value reported for the appropriate field, separately for each stratification cell. Missing values for the remaining survey items were replaced by cell averages. Table B-1 shows the stratification design.

Table B-1: Stratification Design for Weighting

Strat cell	Population (N=1,238)	Panel Respondents (N=339)	Panel Nonrespondents (N=122)
Public Ph.D. universities	111	79	30
Private Ph.D. universities	69	45	24
Public black four-year colleges FTE > 3,000	11	5	5
Public nonblack four-year colleges FTE > 8,750	105	70	21
Private nonblack four-year colleges FTE > 8,750	13	6	4
Public four-year colleges FTE 3,700-8,750	77	30	10
Public four-year colleges FTE < 3,700	172	24	10
Private four-year colleges FTE 2,000-8,750	119	29	9
Private four-year colleges FTE 1,000-2,000	233	33	7
Private four-year colleges FTE < 1,000	328	18	2

Usable responses were received from 74 percent of the 461 eligible survey institutions. Relatively high response rates were recorded for the smaller institutions with total enrollment or undergraduate FTE enrollment below 1,000 students (87 percent and 85 percent, respectively), and for private four-year colleges (79 percent).

Lower-than-average response rates occurred for private universities (66 percent) and institutions in the East (69 percent) and in the West (70 percent).

Because the response rates of certain stratification cells are relatively low, caution should be exercised in interpreting the survey results. The reader is also encouraged to examine the confidence intervals for the estimates. These are shown in Appendix C.

Table B-2: Comparison of Respondents and Nonrespondents
(In percentages)

Characteristic	Respondents (N=339)	Nonrespondents (N=122)	Response Rate
Total	100.0	100.0	73.5
Control			
Public	61.4	62.3	73.2
Private	38.6	37.7	74.0
Type			
Public universities	23.3	24.6	72.5
Private universities	13.3	19.7	65.7*
Public four-year	38.3	37.7	73.7
Private four-year	25.1	18.0	79.4
Census region			
East	25.3	31.7	69.1
Midwest	27.7	20.8	78.8
South	31.2	28.3	75.5
West	15.8	19.2	69.7
Total enrollment			
Under 1,000	5.9	2.5	87.0*
1,000-4,999	27.7	28.7	72.9
5,000-9,999	25.7	29.5	70.7
10,000 or more	40.7	39.3	74.2
Undergraduate FTE			
Under 1,000	8.6	4.1	85.3*
1,000-4,999	36.3	40.2	71.5
5,000-9,999	31.3	28.7	75.2
10,000 or more	23.9	27.0	71.1

* Exceeds or falls short of the overall response rate by more than 10 percent.

APPENDIX C: Reliability of Survey Estimates

Since the statistics presented in this report are based on a sample, they will differ somewhat from the figures which would have been obtained if a complete census had been taken using the same survey instrument, instructions, and procedures. As in any survey, the results are also subject to reporting and processing errors and errors due to nonresponse. To the extent possible, these types of errors were kept to a minimum by methods built into the survey procedures.

The standard error is primarily a measure of sampling variability; that is, the variations that might occur by chance because only a sample of the institutions is surveyed. The chances are about 68 out of 100 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 90 out of 100 that the difference would be less than 1.65 times the standard error; about 95 out of 100 that the difference would be less than 1.96 times the standard error; and about 99 out of 100 that it would be less than 2.5 times as large. Thus, knowing the standard error permits us to specify a range within which we can have a stated confidence that a given estimate would lie if a complete census, rather than a sample survey, had been conducted. As an example, please refer to the estimated number of tenured faculty in the physical sciences at all institutions--15,896. The standard error of the estimate is 406.7 which, when multiplied by 1.65, yields 671, or the half-length of the 90 percent confidence interval. Thus, the chances are about 90 out of 100 that a complete census would show the number of tenured faculty in the physical sciences to be more than 15,225 and less than 16,567.

The following table shows 90 percent confidence intervals of the estimated numbers of tenured, tenure-track, and nontenure-track faculty.

Table C-1: Ninety Percent Confidence Intervals of Estimated Number of Full-Time Faculty, 1978-79, by Institutional Control

Field	Number Tenured		Number Tenure-Track		Number Nontenure-Track	
	Estimate	Confidence Interval ±	Estimate	Confidence Interval ±	Estimate	Confidence Interval ±
TOTAL INSTITUTIONS						
Physical sciences	15,896	671	4,132	380	1,018	132
Engineering	10,508	905	3,651	446	872	132
Mathematical sciences	11,233	493	4,006	285	1,330	128
Life sciences	17,433	1,054	7,282	660	1,884	269
Social sciences	27,917	1,181	13,018	590	3,087	372
Humanities	43,129	1,753	14,747	798	4,310	401
Education	23,667	1,301	9,730	643	3,281	350
PUBLIC INSTITUTIONS						
Physical sciences	11,162	576	2,316	168	836	125
Engineering	8,070	784	2,617	389	767	129
Mathematical sciences	8,376	443	2,716	234	1,118	110
Life sciences	13,905	989	5,564	601	1,654	262
Social sciences	19,636	997	7,660	426	2,271	237
Humanities	27,188	1,376	7,479	478	2,870	276
Education	19,606	1,193	6,882	484	2,747	276
PRIVATE INSTITUTIONS						
Physical sciences	4,734	349	1,816	342	182	45
Engineering	2,438	461	1,034	222	105	31
Mathematical sciences	2,857	221	1,290	165	212	66
Life sciences	3,528	369	1,718	278	230	65
Social sciences	8,281	642	5,358	413	816	290
Humanities	15,941	1,103	7,268	643	1,440	293
Education	4,061	529	2,848	421	534	217

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American Council on Education

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